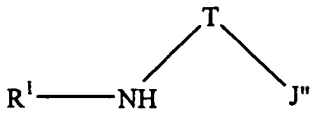
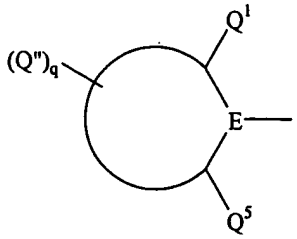
What is claimed is:

1. A composition comprising:

(1) a ligand characterized by the following general formula:



wherein R^1 is characterized by the general formula:



wherein E is either carbon or nitrogen,

Q^1 and Q^5 are substituents on the R^1 ring at a position ortho to E, with Q^1 and Q^5 are independently selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, aryl, substituted aryl and silyl, but provided that Q^1 and Q^5 are not both methyl;

$Q"_q$ represents additional possible substituents on the ring, with q being 1, 2, 3, 4 or 5 and Q" being selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

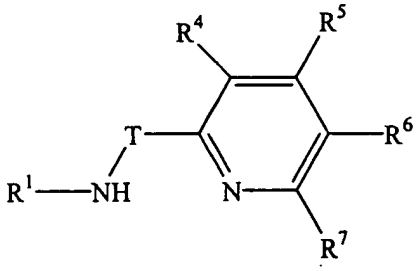
T is a bridging group selected group consisting of $-CR^2R^3-$ and $-SiR^2R^3-$ with R^2 selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; R^3 selected from the group consisting of aryl, substituted aryl, heteroaryl, and substituted heteroaryl; and provided that R^2 is different from R^3;

J" is selected from the group consisting of heteroaryl and substituted heteroaryl;

(2) a metal precursor compound characterized by the general formula $M(L)_n$ wherein M is either hafnium or zirconium and each L is independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure; n is 1, 2, 3, 4, 5, or 6; and

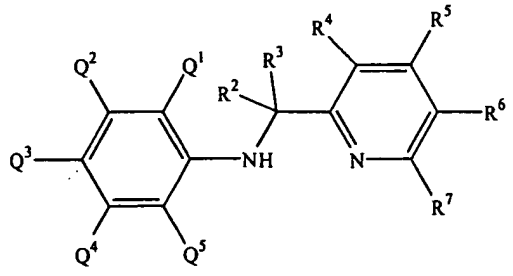
(3) optionally, at least one activator.

2. The composition of claim 1, wherein said ligand is characterized by the formula:



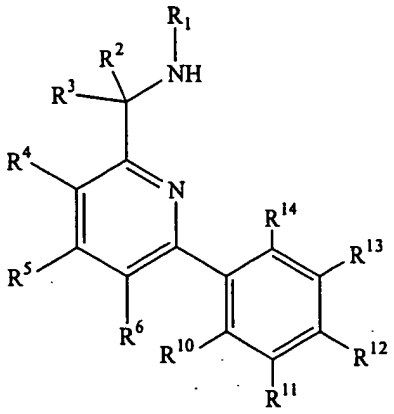
wherein each of R^4, R^5, R^6 and R^7 is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, R^6 or R^7 may be joined together in a ring structure.

3. The composition of claim 2, wherein said ligand is characterized by the general formula:



such that E is carbon and wherein Q^2, Q^3 and Q^4 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two or more of Q^2, Q^3 and Q^4 are joined together in a ring structure.

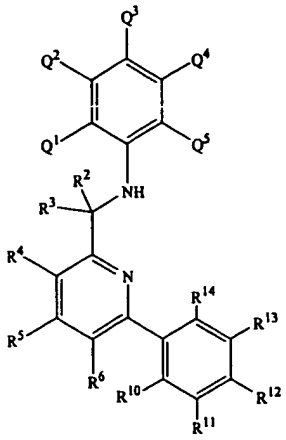
4. The composition of claim 2, wherein said ligand is characterized by the general formula:



such that T is $-CR^2R^3-$ and wherein R^{10}, R^{11}, R^{12} and R^{13} are each independently selected from the group consisting of hydrogen, halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally, two or more R^{10}, R^{11}, R^{12} and R^{13} groups may be joined to form a fused ring system having from 3-50 non-hydrogen atoms; and

R^{14} is selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof.

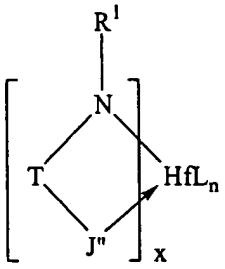
5. The composition of claim 4, wherein said ligand is characterized by the formula:



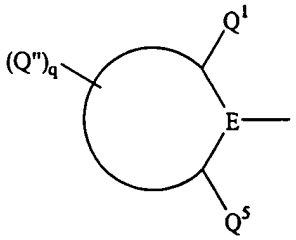
such that E is carbon and wherein Q^2, Q^3 and Q^4 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two or more of Q^2, Q^3 and Q^4 are joined together in a ring structure.

6. The composition of either of claims 1, 2, 3, 4 or 5 wherein M is hafnium.

7. A metal-ligand complex characterized by the following formula:



wherein R^1 is characterized by the general formula:



wherein E is either carbon or nitrogen,

Q^1 and Q^5 are substituents on the R^1 ring at a position ortho to E, with Q^1 and Q^5 being independently selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, aryl, substituted aryl and silyl, but provided that Q^1 and Q^5 are not both methyl;

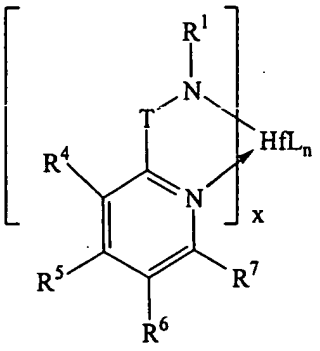
Q''_q represents additional possible substituents on the ring, with q being 1, 2, 3, 4 or 5 and Q" being selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

T is a bridging group selected group consisting of $-CR^2R^3-$ and $-SiR^2R^3-$ with R^2 selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; R^3 selected from the group consisting of aryl, substituted aryl, heteroaryl, and substituted heteroaryl; and provided that R^2 is different from R^3;

J" is selected from the group consisting of heteroaryl and substituted heteroaryl;

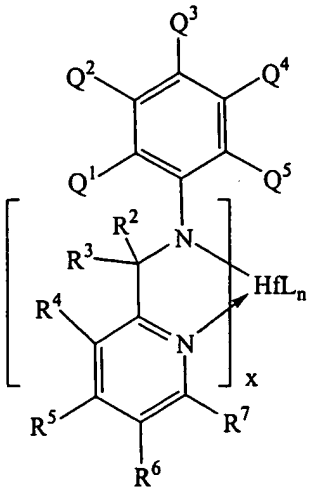
each L is independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure; n is 1, 2, 3, 4, 5, or 6; and x is 1.

8. The metal complex of claim 7 having the formula:



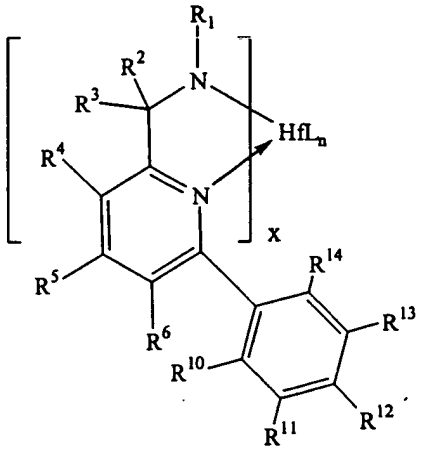
wherein each of R^4, R^5, R^6 and R^7 is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, R^6 or R^7 may be joined together in a ring structure.

9. The metal complex of claim 8 having the formula:



such that E is carbon and wherein Q^2, Q^3 and Q^4 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two or more of Q^2, Q^3 and Q^4 are joined together in a ring structure.

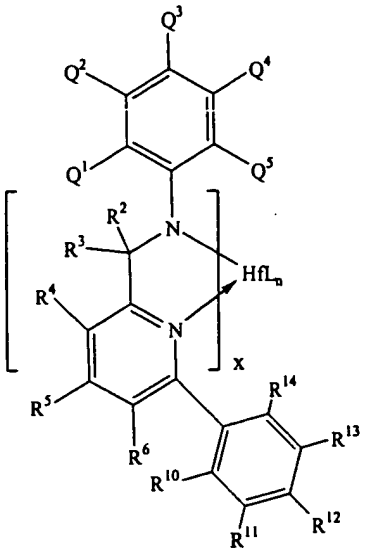
10. The metal complex of claim 8, wherein said complex is characterized by the formula:



such that T is $-CR^2R^3-$ and wherein R^{10}, R^{11}, R^{12} and R^{13} are each independently selected from the group consisting of hydrogen, halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally, two or more R^{10}, R^{11}, R^{12} and R^{13} groups may be joined to form a fused ring system having from 3-50 non-hydrogen atoms; and

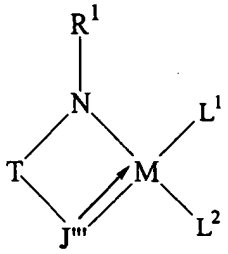
R^{14} is selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof.

11. The metal complex of claim 10, wherein said complex is characterized by the general formula:



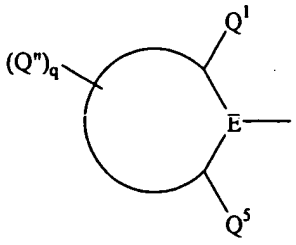
such that E is carbon and wherein Q^2, Q^3 and Q^4 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two or more of Q^2, Q^3 and Q^4 are joined together in a ring structure.

12. A metal complex characterized by the formula:



where M is zirconium or hafnium;

wherein R^1 is characterized by the general formula:



wherein E is either carbon or nitrogen,

Q^1 and Q^5 are substituents on the R^1 ring at a position ortho to E, with Q^1 and Q^5 are independently selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, aryl, substituted aryl and silyl, but provided that Q^1 and Q^5 are not both methyl;

$Q"_q$ represents additional possible substituents on the ring, with q being 1, 2, 3, 4 or 5 and Q" being selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

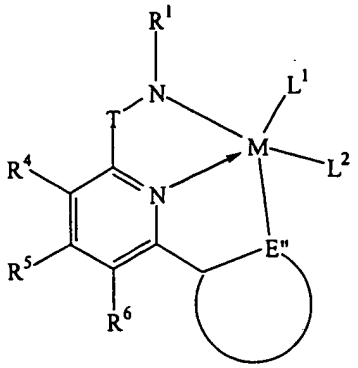
T is a bridging group selected group consisting of $-CR^2R^3-$ and $-SiR^2R^3-$ with R^2 selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; R^3 selected from the group consisting of aryl, substituted aryl, heteroaryl, and substituted heteroaryl; and provided that R^2 is different from R^3;

J'" being selected from the group of substituted heteroaryls with 2 atoms bonded to the metal M, at least one of those 2 atoms being a heteroatom, and with one atom of J'" is bonded to M via a dative bond, the other through a covalent bond; and

L^1 and L^2 are independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates,

sulphates, ethers, thioethers and combinations thereof or optionally the two L groups are joined into a ring structure.

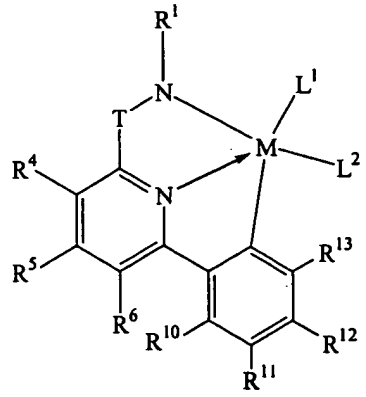
13. The complex of claim 12, wherein said complex is characterized by the formula:



wherein each of R^4, R^5 and R^6 is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, or R^6 may be joined together in a ring structure; and

E" is either carbon or nitrogen and is part of a cyclic aryl, substituted aryl, heteroaryl, or substituted heteroaryl group.

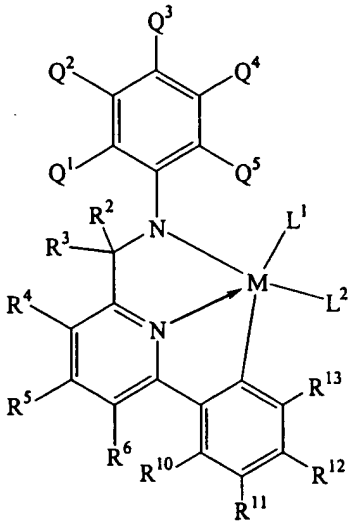
14. The metal complex of claim 13, wherein said complex is characterized by the formula:



wherein R^{10}, R^{11}, R^{12} and R^{13} are each independently selected from the group consisting of

hydrogen, halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally, two or more R^{10}, R^{11}, R^{12} and R^{13} groups may be joined to form a fused ring system having from 3-50 non-hydrogen atoms.

15. The metal complex of claim 14, wherein said complex is characterized by the formula:



wherein Q^2, Q^3 and Q^4 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; or optionally, two of Q^2, Q^3 and Q^4 are joined together in a ring structure.

16. The composition or complex of either of claims 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14 or 15 wherein R^2 is hydrogen.

17. The composition or complex of claim 16, wherein each of R^4, R^5 and R^6 is hydrogen.

18. The composition or complex of claim 17, wherein R^3 is selected from the

group consisting of benzyl, phenyl, naphthyl, 2-biphenyl, 2-dimethylaminophenyl, 2-methoxyphenyl, anthracenyl, mesityl, 2-pyridyl, 3,5-dimethylphenyl, o-tolyl, and phenanthrenyl.

19. The composition or complex of claim 18, wherein Q^1 and Q^5 are both isopropyl; or both ethyl; or both sec-butyl; or Q^1 is methyl and Q^5 is isopropyl; or Q^1 is ethyl and Q^5 is sec-butyl.

20. The composition or complex of claim 19, wherein R^{10}, R^{11}, R^{12}, R^{13}, are each hydrogen; or one or more of R^{10}, R^{11}, R^{12}, R^{13} are methyl, fluoro, trifluoromethyl, methoxy, or dimethylamino; or R^{10} and R^{11} are joined to form a benzene ring and R^{12} and R^{13} are each hydrogen.

21. The composition or complex of either of claims 2, 3, 8, 9, 13 or 14, wherein each of R^4 and R^5 is hydrogen and R^6 is either hydrogen or is joined to R^7 to form a fused ring system.

22. The composition or complex of either of claims 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14 or 15, wherein R^3 is selected from the group consisting of benzyl, phenyl, naphthyl, 2-biphenyl, 2-dimethylaminophenyl, 2-methoxyphenyl, anthracenyl, mesityl, 2-pyridyl, 3,5-dimethylphenyl, o-tolyl, and phenanthrenyl.

23. The composition or complex of either of claims 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14 or 15 wherein Q^1 and Q^5 are, independently, selected from the group consisting of $-CH_2R^{15}$, $-CHR^{16}R^{17}$ and methyl, provided that not both Q^1 and Q^5 are methyl, wherein R^{15} is selected from the group consisting of alkyl, substituted alkyl, aryl and substituted aryl; R^{16} and R^{17} are independently selected from the group consisting of alkyl, substituted alkyl, aryl and substituted aryl; and optionally R^{16} and R^{17} are joined together in a ring structure having from 3-50 non-hydrogen atoms .

24. The composition or complex of claim 23, wherein Q^2, Q^3, and Q^4 are each hydrogen and Q^1 and Q^5 are both isopropyl; or both ethyl; or both sec-butyl; or Q^1 is methyl and Q^5 is isopropyl; or Q^1 is ethyl and Q^5 is sec-butyl.

25. The composition or complex of either of claims 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12,

13, 14 or 15, wherein R^1 or the variables Q^1, Q^2, Q^3, Q^4 and Q^5 are chosen so that the R^1 moiety is selected from the group consisting of 2,6-$(Pr^i)_2$-C_6H_3-; 2-Pr^i-6-Me-C_6H_3-; 2,6-Et_2-C_6H_3-; and 2-sec-butyl-6-Et-C_6H_3-.

26. The composition or complex of either of claims 2, 3, 8 or 9, wherein R^7 is aryl, substituted aryl, heteroaryl or substituted heteroaryl.

27. The composition or complex of claim 26, wherein R^7 is selected from the group consisting of phenyl, napthyl, mesityl, anthracenyl and phenanthrenyl.

28. The composition or complex of either of claims 4, 5, 10 or 11, wherein R^{10}, R^{11}, R^{12}, R^{13}, are each hydrogen; or one or more of R^{10}, R^{11}, R^{12}, R^{13} are methyl, fluoro, trifluoromethyl, methoxy, or dimethylamino; or R^{10} and R^{11} are joined to form a benzene ring and R^{12} and R^{13} are each hydrogen.

29. The composition or complex of either of claims 2, 3, 4, 5, 8, 9, 10, 11, 13, 14 or 15, wherein two or more of R^4, R^5, R^6 and R^7 is joined to form a fused ring system having from 3-50 non-hydrogen atoms in addition to the pyridine ring and/or R^4, R^5 and R^6 are each independently selected from the group consisting of alkyl, aryl, halide, alkoxy, aryloxy, amino, and thio.

30. The composition or complex of either of claims 4, 5, 10, 11 or 15, wherein R^6 and R^{10} are joined to form a ring system having from 5-50 non-hydrogen atoms.

31. A process for the stereospecific polymerization of an alpha-olefin, comprising polymerizing at least one alpha-olefin in the presence of a chiral complex characterized by either of claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 or 15, optionally in the presence of one or more activators, under polymerization conditions.

32. The process of claim 31, wherein said alpha olefin is propylene.

33. The process of claim 31, further comprising providing a reactor with at least one polymerizable monomer and providing a composition or catalyst to said reactor.

34. Isotactic polypropylene produced by polymerization of propylene with the aid of a catalyst that comprises Hf or Zr in a solution polymerization process, wherein the

tacticity index value of the polypropylene does not vary by more than 0.1 when the temperature of the solution process is varied from a temperature below 90°C to a temperature above 100°C.

35. Isotactic polypropylene produced by polymerization of propylene with the with the aid of a catalyst that comprises Hf or Zr in a solution polymerization process, wherein the melting point of the polypropylene does not vary by more than 10°C when the temperature of the solution process is varied from a temperature below 90°C to a temperature above 100°C.

36. Isotactic polypropylene produced by polymerization of propylene with the with the aid of a catalyst that comprises Hf or Zr in a solution polymerization process, wherein the temperature of the solution process is at least 110°C and the polypropylene has a weight average molecular weight of at least 100,000.

37. The isotactic polypropylene of either of claims 34 or 35, wherein said solution process is operated at a temperature at or above 110°C.

38. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the composition of claim 1.

39. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the composition of claim 2.

40. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the composition of claim 3.

41. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the composition of claim 4.

42. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the composition of claim 5.

43. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 6.

44. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 7.

45. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 8.

46. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 9.

47. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 10.

48. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 11.

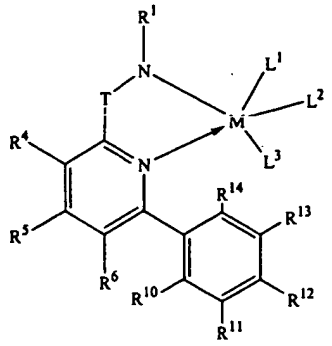
49. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 12.

50. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 13.

51. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 14.

52. The isotactic polypropylene of either of claims 34, 35 or 36, wherein said catalyst is formed from the complex of claim 15.

53. A process for polymerizing propylene to crystalline polypropylene in a solution process, comprising contacting propylene monomer with a catalyst comprising a metal-ligand complex combined with an activator, combination of activators or activating technique, wherein at least one of said activators is a group 13 reagent and said metal-ligand complex is characterized by the formula:



where M is zirconium or hafnium;

L^1, L^2 and L^3 are independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure;

R^1 is selected from the group consisting of 2,6-$(Pr^i)_2$-C_6H_3-; 2-Pr^i-6-Me-C_6H_3-; 2,6-Et_2-C_6H_3-; or 2-sec-butyl-6-Et-C_6H_3-;

T is a bridging group selected group consisting of $-CR^2R^3-$ and $-SiR^2R^3-$;

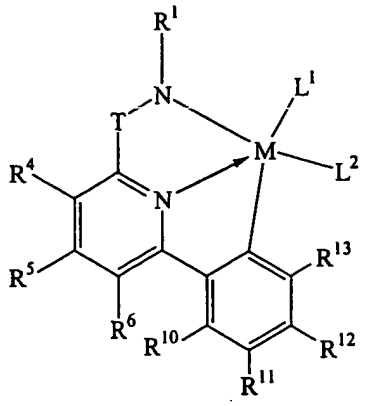
R^3 is selected from the group consisting of aryl and substituted aryl;

R^2, R^4, R^5 and R^6 are hydrogen;

either R^{10}, R^{11}, R^{12}, R^{13}, are each hydrogen; or one or more of R^{10}, R^{11}, R^{12}, R^{13} are methyl, fluoro, trifluoromethyl, methoxy, or dimethylamino; or R^{10} and R^{11} are joined to form a benzene ring and R^{12} and R^{13} are each hydrogen; and

R^{14} is either hydrogen or methyl.

54. A process for polymerizing propylene to crystalline polypropylene in a solution process, comprising contacting propylene monomer with a catalyst comprising a metal-ligand complex combined with an activator, combination of activators or activating technique, wherein at least one of said activators is a group 13 reagent and said metal-ligand complex is characterized by the formula:



where M is zirconium or hafnium;

L^1 and L^2 are independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally the two L groups are joined into a ring structure;

R^1 is selected from the group consisting of 2,6-$(Pr^i)_2$-C_6H_3-; 2-Pr^i-6-Me-C_6H_3-; 2,6-Et_2-C_6H_3-; or 2-sec-butyl-6-Et-C_6H_3-;

T is a bridging group selected group consisting of $-CR^2R^3-$ and $-SiR^2R^3-$;

R^3 is selected from the group consisting of aryl and substituted aryl;

R^2, R^4, R^5 and R^6 are hydrogen; and

either R^{10}, R^{11}, R^{12}, R^{13}, are each hydrogen; or one or more of R^{10}, R^{11}, R^{12}, R^{13} are methyl, fluoro, trifluoromethyl, methoxy, or dimethylamino; or R^{10} and R^{11} are joined to form a benzene ring and R^{12} and R^{13} are each hydrogen.